

Application No. 10/082,000

Attorney Docket No. W1010.136-US-01 (formerly 134.140)

IN THE CLAIMS:

1. (currently amended): In a three-phase hybrid type stepping motor comprising a stator, and a rotor arranged concentrically with the stator and with an air gap therebetween, said stator having an annular stator yoke, six stator poles extending radially and formed at a regular pitch on the inner peripheral surface of the annular stator yoke, and stator windings of three-phase each wound around each stator pole, each of said stator poles having a plurality of small stator teeth at the tip end thereof, said rotor having two splitted rotor elements and a permanent magnet held therebetween and magnetized so as to form N and S poles in the axial direction thereof, and a plurality of small rotor teeth formed at a regular pitch on the outer peripheral surface of each of said rotor elements, said two splitted rotor elements being shifted from each other in angular position by a 1/2 pitch of the small rotor teeth, a permeance distribution of the small stator teeth is a vernier pitch balanced by a six order harmonic wave, and a ratio of the tooth width ~~of the small stator teeth~~ with respect to the pitch of the small rotor teeth is set to .35-.45.

2. (currently amended): In a three-phase hybrid type stepping motor comprising a stator, and a rotor arranged concentrically with the stator and with an air gap therebetween, said stator having an annular stator yoke, six stator poles extending radially and formed at a regular pitch on the inner peripheral surface of the annular stator yoke, and stator windings of three-phase each wound around each stator pole, each of said stator poles having a plurality of small stator teeth at the tip end thereof, said rotor having two splitted rotor elements and a permanent magnet held therebetween and magnetized so as to form N and S poles in the axial direction thereof, and a plurality of small rotor teeth formed at a regular pitch on the outer peripheral surface of each of said rotor elements, said two splitted rotor elements being shifted from each other in angular position by a $\frac{1}{2}$ pitch of the small rotor teeth, a permeance distribution of the small stator teeth is a vernier pitch balanced by a three order harmonic wave, and a ratio of the tooth width ~~of the small stator teeth~~ with respect to the pitch of the small rotor teeth is set to 0.35-0.45.

3. (currently amended): The three-phase hybrid type stepping motor as claimed in Claim 1, wherein a number of the small rotor teeth is fifty, a number of the small stator teeth is eight, a

Application No. 10/082,000

Attorney Docket No. W1010.136-US-01 (formerly 134.140)

stator tooth pitch is 7.05, and a ratio of the tooth width ratio with respect to the pitch of the small rotor teeth ~~with the small stator teeth~~ is set to 0.35-0.45.

4. (canceled)

5. (original): The three-phase hybrid type stepping motor as claimed in Claim 1, wherein the three-phase windings of the stator are connected in the form of delta.

6. (original): The three-phase hybrid type stepping motor as claimed in Claim 2, wherein the three-phase windings of the stator are connected in the form of delta.

7. (original): The three-phase hybrid type stepping motor as claimed in Claim 3, wherein the three-phase windings of the stator are connected in the form of delta.

8-12 (canceled)